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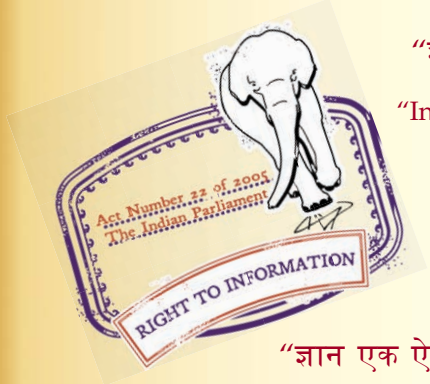

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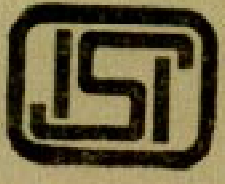
Indian Standard

SPECIFICATION FOR BAUXITE SAND

UDC 621·742·42 : 622·349·21



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SPECIFICATION FOR BAUXITE SAND

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(*Continued on page* 7)

Indian Standard

SPECIFICATION FOR BAUXITE SAND

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 29 September 1976, after the draft finalized by the Foundry Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 Bauxite sand is prepared by first calcining bauxite to above 1 400°C to reduce shrinkage and then crushing the calcined bauxite.

0.2.1 Bauxite sand requires very little bond addition as the fines of bauxite act as a bond. Bauxite being amphoteric in nature, it is not reactive towards manganese steel. Bauxite sand is, therefore, normally preferred for the high manganese steel castings.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

---

1. SCOPE

1.1 This standard covers the requirements for bauxite sand for use in foundries.

2. SUPPLY OF MATERIAL

2.1 General requirements relating to the supply of bauxite sand shall be as laid down in IS : 1387-1967†.

3. MOISTURE CONTENT

3.1 Moisture content of bauxite sand when tested in accordance with the method given in IS : 1918-1966‡ shall not exceed 1·0 percent.

---

*Rules for rounding off numerical value (*revised*).
†General requirements for the supply of metallurgical materials (*first revision*).
‡Methods of physical tests for foundry sands.

4. CHEMICAL COMPOSITION

4.1 Bauxite sand shall have the following composition on dry weight basis, when tested in accordance with the procedure specified in IS: 2000-1962*:

Constituent	*Requirement, Percent*
Al_2O_3	75 *Min*
Fe_2O_3	5 *Max*
CaO + MgO	1 *Max*
TiO_2	10 *Max*
SiO_2	10 *Max*
Alkalies	0·5 *Max*
Loss on ignition	0·5 *Max*

5. FUSION POINT

5.1 Whe tested in accordance with IS: 1528 (Part I)-1974† the PCE value of bauxite sand shall be not below standard pyrometric cone (ASTM) No. 35 (1 800°C).

6. GRAIN SHAPE

6.1 When tested in accordance with IS: 1918-1966‡, the grains shall be angular to subangular.

7. GRAIN FINENESS

7.1 The fineness of the bauxite sand shall conform to the following requirements:

IS Sieve	*Percent Retained*
4·00 mm	Nil
3·35 mm	5 *Max*
1·70 mm	10 *Max*
850-micron	20-25
600-micron	15-20
425-micron	10-15
300-micron	10-15
212-micron	5-10
150-micron	5-10
106-micron	5 *Max*
Pan	10-15
Grain fineness No.	35-40

*Methods of chemical analysis of bauxite.

†Methods of sampling and physical tests for refractory materials: Part I Determination of pyrometric cone equivalent (PCE) or softening point (*first revision*).

‡Methods of physical tests for foundry sands.

7.2 If required, bauxite sand with fineness other than that specified in **7.1** may be supplied subject to the agreement between the purchaser and the manufacturer.

NOTE — When IS sieves (*see* IS : 460-1962*) are not available, equivalent BS or ASTM test sieves specified in Appendix A may be used. The BS and ASTM sieves listed in Appendix A have the apertures within the limits specified for the corresponding IS sieves.

8. CLAY CONTENT

8.1 The clay content, when determined in accordance with IS : 1918-1966†, shall not exceed 1 percent.

9. PACKING

9.1 Unless specified otherwise, bauxite sand shall be supplied in polythene-lined gunny bags each containing 50 kg.

10. MARKING

10.1 The bags containing bauxite sand shall be clearly marked with the supplier's name or trade-mark.

10.1.1 The material may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

*Specification for test sieves (*revised*).
†Methods of physical tests for foundry sands.

APPENDIX A

(*Clause* 7.2)

COMPARATIVE SIEVE DESIGNATIONS OF IS, BS AND ASTM TEST SIEVES

IS Sieve	*BS Test Sieve*	*ASTM Test Sieve*
4·00 mm	—	5
3·35 mm	5	6
1·70 mm	10	12
850-micron	18	20
600-micron	25	30
425-micron	36	40
300-micron	52	50
212-micron	72	70
150-micron	100	100
106-micron	150	140

(*Continued from page* 2)

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1305-1967 Graphite for use as foundry facing material (*second revision*)
1513-1971 Pattern equipment for foundries (*first revision*)
1752-1973 Coal dust for use in cast iron foundry (*second revision*)
1811-1961 Methods of sampling foundry sands
1918-1966 Methods of physical tests for foundry sands
1987-1974 High silica sand for use in foundries (*first revision*)
3339-1975 Silica flour for use in foundries (*second revision*)
3343-1975 Natural moulding sand for use in foundries (*first revision*)
3666-1966 Tests for foundry core oils requiring baking
4140-1967 Limestone for use in foundries
4269-1967 Dextrin for use in foundries
4475-1975 Crane-suspended hand-operated geared ladles for iron foundries (*first revision*)
4476-1975 Crane-suspended hand-operated geared ladles for steel foundries (*first revision*)
4604-1975 Pattern plates for machine moulding boxes (*first revision*)
4606-1968 Steel shot for use in foundries
4683-1968 Chilled iron shot and grit for use in foundries
4981-1975 Guide pins for foundry pattern plates (*first revision*)
4982-1975 Closing pins for foundry moulding boxes (*first revision*)
5032-1975 Recommended sizes of cupola furnace for foundry (*first revision*)
5303-1974 Zircon flour for use in foundries (*first revision*)
5824-1970 Lancets for use in foundries
5841-1970 Fluted core cleaners for use in foundries
5850-1970 Star (triangular) cutters for use in foundries
5873-1970 Steel cut-wire shots for use in foundries
5904-1970 Chaplets for use in foundries
5981-1970 Sleekers for use in foundries
5988-1970 Spring dowel sleeves (light and heavy patterns) for use in foundries
6013-1970 Trowels for use in foundries
6366-1971 Sprue plugs for use in foundries
6376-1971 Pattern lifting pins and hooks for use in foundries
6377-1971 Mallets for use in foundries
6378-1971 Pattern lifting and rapping plates
6401-1971 Dowel pins for use in foundries
6443-1971 Lifters and cleaners for use in foundries
6447-1971 Vent wires for use in foundries
6482-1971 Tampers and rammers for use in foundries
6773-1973 Sodium silicate for use in foundries
6788-1973 Chromite sand for use in foundries
7295-1974 Chamotte
7297-1974 Olivine sand and flour for use in steel foundries
7547-1974 Steel nails used as internal chills in steel castings

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